

Question #1 of 10

Question ID: 438968

A variable is regressed against three other variables, x , y , and z . Which of the following would NOT be an indication of multicollinearity? X is closely related to:

- ☐ A) $3y + 2z$.
- ☐ B) 3.
- ☐ C) $9y$, and x is closely related to $4z$.
- ☒ D) y^2 .

Explanation

If x is related to y^2 , the relationship between x and y is not linear, so multicollinearity does not exist. If x is equal to a constant (3), it will be correlated with the intercept term.

Question #2 of 10

Question ID: 438961

Which of the following statements regarding the results of a regression analysis is **FALSE**? The:

- ☐ A) slope coefficient in a multiple regression is the change in the dependent variable for a one-unit change in the independent variable, holding all other variables constant.
- ☐ B) slope coefficients in the multiple regression are referred to as partial betas.
- ☐ C) intercept is the value that the dependent variable takes on if all the independent variables had a value of zero.
- ☒ D) slope coefficient in a multiple regression is the value of the dependent variable for a given value of the independent variable.

Explanation

The slope coefficient is the change in the dependent variable for a one-unit change in the independent variable.

Question #3 of 10

Question ID: 438966

Which of the following is a potential remedy for multicollinearity?

- ☐ A) Increase the sample size.
- ☐ B) Add dummy variables to the regression.
- ☐ C) Take first differences of the dependent variable.
- ☒ D) Omit one or more of the collinear variables.

Explanation

The first differencing is not a remedy for the collinearity, nor is the inclusion of dummy variables. Increasing the sample size may improve the t-statistics associated with the estimates, but does is not a remedy to the problem. The best potential remedy is to attempt to eliminate highly correlated variables.

Question #4 of 10

Question ID: 438964

Assume that in a particular multiple regression model, it is determined that the error terms are uncorrelated with each other. Which of the following statements is *most* accurate?

- ☐ A) Serial correlation may be present in this multiple regression model, and can be confirmed only through a Durbin-Watson test.
- ☐ B) Unconditional heteroskedasticity present in this model should not pose a problem, but can be corrected by using robust standard errors.
- ☒ C) This model is in accordance with the basic assumptions of multiple regression analysis because the errors are not serially correlated.
- ☐ D) Multicollinearity exists in this multiple regression model, and can be corrected through the addition of a correlated variable.

Explanation

One of the basic assumptions of multiple regression analysis is that the error terms are not correlated with each other. In other words, the error terms are not serially correlated. Multicollinearity and heteroskedasticity are problems in multiple regression that are not related to the correlation of the error terms.

Question #5 of 10

Question ID: 438970

An analyst further studies the independent variables of a study she recently completed. The correlation matrix shown below is the result. Which statement *best* reflects possible problems with a multivariate regression?

	Age	Education	Experience	Income
Age	1.00			
Education	0.50	1.00		
Experience	0.95	0.55	1.00	
Income	0.60	0.65	0.89	1.00

- ☐ A) Income is not needed.
- ☒ B) Experience may be a redundant variable.
- ☐ C) Education may be unnecessary.
- ☐ D) Age should be excluded from the regression.

Explanation

The correlation coefficient of experience with age and income, respectively, is close to +1.00. This indicates a problem of multicollinearity and should be addressed by excluding experience as an independent variable.

Question #6 of 10

Question ID: 438962

When interpreting the results of a multiple regression analysis, which of the following terms represents the value of the dependent variable when the independent variables are all equal to zero?

- ✓ **A) Intercept term.**
- X B) *t*-value.
- X C) *p*-value.
- X D) Slope coefficient.

Explanation

The intercept term is the value of the dependent variable when the independent variables are set to zero.

Question #7 of 10

Question ID: 438969

An analyst runs a regression of portfolio returns on three independent variables. These independent variables are price-to-sales (P/S), price-to-cash flow (P/CF), and price-to-book (P/B). The analyst discovers that the *p*-values for each independent variable are relatively high. However, the *F*-test has a very small *p*-value. The analyst is puzzled and tries to figure out how the *F*-test can be statistically significant when the individual independent variables are not significant. What violation of regression analysis has occurred?

- X A) **unconditional heteroskedasticity.**
- ✓ B) multicollinearity.
- X C) serial correlation.
- X D) conditional heteroskedasticity.

Explanation

An indication of multicollinearity is when the independent variables individually are not statistically significant but the *F*-test suggests that the variables as a whole do an excellent job of explaining the variation in the dependent variable.

Question #8 of 10

Question ID: 438967

Which of the following statements regarding multicollinearity is **FALSE**?

- X A) **If the *t*-statistics for the individual independent variables are insignificant, yet the *F*-statistic is significant, this indicates the presence of multicollinearity.**
- X B) Multicollinearity makes it difficult to determine the contribution to explanation of the dependent variable of an individual explanatory variable.
- ✓ C) Multicollinearity may be present in any regression model.
- X D) Multicollinearity may be a problem even if the multicollinearity is not perfect.

Explanation

Multicollinearity is not an issue in simple regression.

Question #9 of 10

Question ID: 438965

Which of the following statements *least* accurately describes one of the fundamental multiple regression assumptions?

- ☐ A) There is no exact linear relationship between any two or more independent variables.
- ☐ B) The error term is normally distributed.
- ☐ C) The independent variables are not random.
- ☒ D) The variance of the error terms is not constant (i.e., the errors are heteroskedastic).

Explanation

The variance of the error term **IS** assumed to be constant, resulting in errors that are homoskedastic.

Question #10 of 10

Question ID: 438963

One of the underlying assumptions of a multiple regression is that the variance of the residuals is constant for various levels of the independent variables. This quality is referred to as:

- ☐ A) a normal distribution.
- ☒ B) homoskedasticity.
- ☐ C) a linear relationship.
- ☐ D) serial correlation.

Explanation

Homoskedasticity refers to the basic assumption of a multiple regression model that the variance of the error terms is constant.